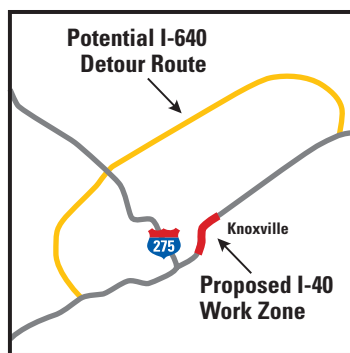




www.tfhrc.gov/its/quickzon.htm

CASE STUDY SNAPSHOT #1

I-40 Full Closure Feasibility Assessment



Tennessee Department of Transportation (TDOT) identified a section of **I-40 east of downtown Knoxville** as a candidate for major rehabilitation, and in 2004, considered various strategies to perform the needed roadwork, keeping in mind construction costs, project duration, and potential impact to road users. In particular, TDOT considered the use of a full closure to complete complex work on freeway interchanges without the maintenance of through traffic on I-40.

The advantages of this option over more traditional approaches include reduced project duration, improved worker safety, and potential cost savings over more traditional approaches. However, the impact on road users throughout the closure period was poorly understood. From the road network geometry in the metropolitan area, it was clear that the brunt of the diverted traffic demand would have to be borne by I-640. TDOT commissioned a traffic study to predict traffic volumes on I-640 for a prospective 2008 full closure on I-40. The study used vehicle-matching technologies to identify through and local traffic volumes by collecting field data in the first half of 2004. The results of this study were used by analysts to better predict travel demands on I-640 during the construction period.

The study used QuickZone to identify the likelihood of significant congestion under the proposed full closure option by presenting a quick prediction based on current traffic volumes.

When it became clear that congestion was likely to be significant, more refined traffic demand data and more detailed network geometry was applied in QuickZone. The increased scope identified the likely delay impacts and targets to assist the management of local and interstate traffic demand in preventing lengthy delays on I-640 and at the I-40/I-640 interchanges.



KEY OBSERVATIONS

QuickZone can be utilized to predict likely delay impacts from a proposed full closure on a major interstate.

Predicted delays highlighted the potential for extensive delays and helped TDOT mobilize resources for demand management and public outreach prior to construction.

A tiered modeling approach is a cost effective strategy for using QuickZone. First, less detailed data are used to scope potential delays—then, if deemed necessary, enhanced travel demand and more detailed network models are employed.

QUICKZONE

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